

BRESLER, S.Ye.; SINOCHKIN, Yu.D.; YEGOROV, A.I.; PERUMOV, D.A.

Ion-exchange resins based on zirconium. Radiokhimiia 1 no.5:507-513
'59. (MIRA 13:2)

(Zirconium) (Gums and resins)

S/062/60/000/011/004/016
B013/B078

AUTHORS: Bresler, S. Ye., Yegorov, A. I., Konstantinov, B. P.
TITLE: Theory and Practice of Continuous Chromatography
PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, No. 11, pp. 1938 - 1947

TEXT: The possibility has been examined of performing chromatography as a continuous process. This would be extremely favorable for the large-scale partition of mixtures. The simplest solution of this problem seems to be the creation of apparatus on the basis of extraction columns, i.e., with a counterflow of ionite powder and solution. To prevent the longitudinal intermixing of the liquid, which would be inevitable in this case and would impair the creation of the highest possible number of partition steps, it is suggested here that the counterflow of the solid sorbent be replaced by a counterflow of the vessels filled with the solid sorbent. The suitability of such a solution was proved by Spedding, Powell, and Svec (Ref.1). A system with a counterflow of the vessels (Fig.1) consists of a set of columns with ionite. The zone of

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the mixture to be separated is situated in one of these columns. Under the action of the displacing ionic current, the mixture zone is shifted into the next section, from this again into the next, etc. If the displacing and the ions are properly selected, it can be shifted as far as desired, without thereby losing their size or shape. The mixture components, in this connection, concentrate at both ends of the zone. Once the equilibrium distribution of the components is stabilized, the periodic taking of partition products is started. This takes place at the moment when the mixture zone changes over from one section into the other. The problem of the distribution of mixture components was solved for the case of a stationary zone by S. Ye. Bresler (Ref.2). An analysis was made of the operation of a chromatographic partition system for the case $\xi \ll 1$, and the distribution of the components in the zone under continuous displacement was determined from a differential equation. With a view to demonstrate the possibilities of continuous chromatography, an investigation was made of the partition of alkali metals on the CSC (SBS) cationite. A laboratory system was worked out (Fig.3) in which there was practically no space left between the individual sections. Equimolecular $\text{Na}^+ - \text{Li}^+$ and $\text{K}^+ - \text{Na}^+$ mixtures were examined.

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The main characteristics of chromatographic displacement were the following: length of the mixture zone $L = 40$ cm; total length of the column of sorbent - 150 cm; rate of shift of the mixture zone in the column $v = 0.002 - 0.01$ cm/sec; salt concentration of the displacing solution $c_0 = 0.5$ N; "volume capacity" of the sorbent 1.5 mg-equivalent/ml; $\alpha c_0/m_0 = 0.25$ (α - volume of the distance between the grains of sorbent; m_0 - exchange capacity of displacing solution). It was possible to establish the stabilization of the distribution of elements in the zone by recording the change in electrical conductivity in various sections. It was found that the concentration starts changing at the ends of the zone. This disturbance propagates toward the center of the zone. After a distance of 1.5 m the stationary interface between the ions of the mixture stabilizes. In the experiments, pure lithium acetate was placed at the front end of the zone, and pure sodium acetate at the rear end. Similar results were obtained for $K^+ - Na^+$. Thus, continuous partition can be used for obtaining high-purity alkali-metal salts. G. V. Samsonov is mentioned. There are 5 figures and 4 references: 3 Soviet and 1 US.

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Theory and Practice of Continuous Chromatography

S/062/60/000/011/004/016
B013/B078

ASSOCIATION: Fiziko-tekhniicheskiy institut Akademii nauk SSSR
(Physicotechnical Institute of the Academy of Sciences
USSR). Leningradskiy politekhniicheskiy institut im.
M. I. Kalinina (Leningrad Polytechnic Institute imeni
M. I. Kalinin)

SUBMITTED: June 22, 1959

Card 4/4

BRESLER, S.E. [Bresler, S.Ye.]; EGOROV, A.I. [Yegorov, A.I.]

Theory and practice of continuous chromatography. Analele
biol 16 no.2:139-149 Mr-Apr '62.

*

L1163

S/169/62/000/009/066/120
D228/D307

21.4200

AUTHORS: Gromtsev, Yu. V. and Yegorov, A. I.

TITLE: Method of rapidly preparing pure uranium salts from secondary uranium minerals

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 9, 1962, 45, abstract 9A295 (In collection: Vopr. rudn. geofiz., no. 3, M., Gosgeoltekhizdat, 1961, 111-113)

TEXT: The authors state a physico-chemical method for preparing pure uranyl nitrate by means of sorbing uranium from carbonate extract, neutralized to a pH of 2.5 - 3, on $CF-2(SG-2)$ carboxyl cationite. After removing the unsorted ions (by rinsing with distilled water), uranium is washed off the cationite with 0.5N hydrochloric or nitric acid. Uranyl nitrate was obtained after evaporating the acid solution and dissolving the dry calcined residue in a few drops of concentrated nitric acid. The SG-2 cationite's preliminary treatment is described, as is the procedure for ascertaining the original solution's optimum pH. The results of the

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Method of rapidly...

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spectral analysis of the uranium's purity are given. The compound's radiochemical purity was verified by measuring the α -radiation's spectrum on an α -spectrometer. The amount of Ra and I_0 was less than 1% of their original concentration in the mineral. The possibility of increasing the degree of the uranium's purity is indicated. It is, moreover, concluded that the method can be expediently employed under field conditions. / Abstracter's note: Complete translation. /

Card 2/2

YEGOROV, A.I.; KIZIL'SHTEYN, L.Ya.

Method for the anatomic study of the tissues of fossil plants based
on the fusain component of coal. Dokl. AN SSSR 151 no.4:950-951
Ag '63. (MIRA 16:8)

1. Rostovskiy-na-Donu gosudarstvennyy universitet. Predstavleno
akademikom A.L.Yanshinym.
(Paleobotany) (Fusain)

YEGOROV, A. I.

21

The Dihamantuz group of hard-coal deposits. A. I. Egorov. *Razvedka Nedr* 11, No. 2-3, 23-30(1940).—Coal deposits discovered in Dihamantuz (Kazakhstan) are anthracitic and contain H₂O 0.02-7.20, ash 10.04-48.10, C 60.04-74.57, S 0-0.06, H 2.82-2.81, volatile matter 7.28-16.80%; heating values are 4819-6132 cal. A. A. B.

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

YEGOROV, A. I.

PROCESSES AND PROPERTIES INDEX

Distribution of germanium in the coals of Kazakhstan.
A. I. Egorov and S. K. Kalinin. *Compt. rend. acad. sci. R. S. S. 26*, 925-6 (1940) (in English). Coals from 35 deposits were ashed in a muffle at 500 (600)° and the ashes examd. spectrographically. Ge was found in 11 deposits. The fact that Ge is highest in coals with lowest ash was checked. It was not present in coals with ash content greater than 19%. In the Paleozoic coals, even those with low ash, Ge was not present in appreciable quantities; the highest contents were in lignites; thin beds and lenses among sandy and clayey rocks show a higher Ge content.
D. W. Pearce

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

RECORDING

RECORDING

YEGOROV, A.I.

Conditions of the Carboniferous coal measures of northeastern
Kazakhstan. Trudy Inst.geol.nauk. no.90:134-138 '47. (MLRA 9:11)
(Kazakhstan--Coal)

YEGOROV, A.I.

Yegorov, A.I.: "The Rifev carboniferous strata of Kazakhstan", Byulleten' Mosk. o-va ispytateley prirody, Otd. geol., 1948, Issue 4, p. 23-33, - Bibliog: 16 items.

SO: U-3042, 11 March 53, (Letopis 'nykh Statey, No. 9, 1949)

15-57-4-4110

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 4,
p 8 (USSR)

AUTHOR: Yegorov, A. I.

TITLE: Faunal Migration and Stratigraphic Problems in the
Lower Carboniferous of the Ishim Region (Northern
Kazakhstan) /Migratsiya faun i voprosy stratigrafii
nizhnego karbona Priishim'ya (Severnyy Kazakhstan)/

PERIODICAL: Uch. zap. Rostovsk.-na-Donu, un-ta, 1955, Vol 33,
pp 3-17

ABSTRACT: The eastern Kazakhstan marine basin was connected with
the Ural-Kustanay seaway during the second half of the
Tournaisian in the region of the middle course of the
Ishim River. This connection permitted forms from the
North American province to mingle with those from the
European province. The North American forms, found in
any of the layers in the Ishim sections together with
Western European forms, commonly point to an older age
than the European forms. The North American forms died

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15-57-4-4110

Faunal Migration and Stratigraphic Problems (Cont.)

out more slowly than the Western European forms. In each of these two groups, forms are found in association which characterize different horizons and are never found together in the standard sections of Western Europe or of North America. In studying the problem of the age of the deposits in the Ishim region, the author takes as his starting point the position that the uniquely proper criterion for correlation of beds is the first appearance of a form, rather than the time of disappearance. The problem of direction of migration should be solved in conjunction with a study of the paleogeographic conditions. The author concludes that, in the section described by S. M. Andronov, the age of the lower part of horizon C₁^Va is necessarily defined as upper Tournaisian, and the upper part of the same horizon and the horizon C₁^Vb as lower Visean. C₁^Vc is no older than middle Visean.

Card 2/2

L. Sh. D.

GOZULOV, Avdey Il'ich, professor; YEGOROV, A.I., professor, otvetstvennyy redaktor; LOS', T.A., redaktor-izdatel'stva; CHERNYSHENKO, Ya.T., tekhnicheskii redaktor

[The Lower Don (Rostov and Kamensk Provinces); natural resources, population and economy] Nizhnii Don (Rostovskaia i Kamenskaia oblasti); priroda, naselenie, khoziaistvo. Khar'kov, Izd-vo Khar'kovskogo universiteta, 1956. 206 p.
(Don Valley--Geography) (MLRA 10:3)

YEGOROV, A.I.

Microscopic method of studying anthracites. Bnl.MOIP.Otd.geol.31
no.1:93-94 Ja-P '56. (MLRA 9:7)
(Anthracite coal)

15-57-10-14394

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 10,
p 168 (USSR)

AUTHOR: Yegorov, A. I.

TITLE: The Relative Roles of Crustal Movements and of Climate
in the Processes of Peat Accumulation (K voprosu ob
otnositel'noy roli dvizheniy zemnoy kory i klimata v
protsessakh torfonakopleniya)

PERIODICAL: Uch. zap. Rostovsk. n/D. un-ta, 1956, Nr 34, pp 3-15

ABSTRACT: The theory of the relatively systematic migration of
foci of coal accumulation has not been fully demon-
strated. The shifting of the centers of accumulation
of organic masses in the belts is determined by dynamic
forces within and without the geosphere. The chief
factor in the distribution of organic masses within
the belts is tectonic; the climatic factor is secondary.
The author is of the opinion that there have always
been climatic belts and zones on the earth in the past.

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15-57-10-14394

The Relative Roles of Crustal Movements (Cont.)

Their presence has been marked by fresh-water coal accumulation, with but slight indication of parallel accumulations. The rate and nature of the coal accumulation is easily deciphered by noting the thickness of the coal-bearing masses and the total thickness of the coal beds. Citing data on the length of time of the coal-accumulating epoch and the rate of deposition of the organic mass, the author establishes an average rate of 0.6 mm to 1.0 mm per year. By studying samples of coal from different deposits, he has distinguished four types of climatic fluctuations (11 to 13 years, 37 to 43 years, 120 to 125 years, and 2100 to 2 200 years) which are similar to modern fluctuations of climate.

Card 2/2

Ye. G. Martynov

YEGOROV, A.I.

Formation of coal beds in the Ural-Mba salt dome region. Razved.
1 okh.nedr 23 no.1:32-38 Ja '57. (MLRA 10:3)

1. Rostovskiy gosudarstvennyy universitet.
(Mba Valley--Coal geology)

YEGOROV, A.I.

Principles of making prognostic maps of coal deposits. Uch. zap.
RGU 44:3-16 '59. (MIRA 14:1)
(Geology--Maps)

YEGOROV, A.I.; YEGOROVA, M.N.

Basic petrographic anthracite types in the middle Carboniferous
of the eastern Donets Basin. Uch. zap. RGU 44:135-153 '59.
(MIRA 14:1)

(Donets Basin--Anthracite coal)

YEGOROV, Aleksandr Ivanovich; KOBILEV, A.G., otv. red.; PALAMARCHUK, A.B.,
red. izd-va; PAVLICHENKO, M.I., tekhn. red.

[Belts of coal formations and oil- and gas-bearing zones of the
earth] Poiasa ugleobrazovaniia i neftegazonosnye zony zemnogo sha-
ra. Rostov-na-Donu, Izd-vo Rostovskogo univ., 1960. 181 p.

(MIRA 14:7)

(Coal geology)

(Petroleum geology)

(Gas, Natural--Geology).

POTAPOV, Igor', Ivanovich; YEGOROV, A.I., prof., otv. red.;
KORNILOV, Ye.A., red.

[Geotectonics; a textbook] Geotekhnika; uchebnoe posobie.
Rostov-na-Donu, Izd-vo Rostovskogo univ., 1964. 251 p.
(MIRA 18:7)

YEGOROV, A. I.

"The Course of Experimental Pepton and Traumatic Shock During Stimulation of the Reflexogenic Zone of the Cardiovascular System." Cand Med Sci, Rostov-on-Don State Medical Inst, Rostov-on-Don, 1953. (RZhBiol, No 6, Nov 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (11)

SO: Sum. No. 521, 2 Jun 55

USSR/Human and Animal Physiology. Digestion. The Stomach.

T-7

Abs Jour: Ref Zhur-Biol., No 12, 1958, 55714.

Author : Yegorov, A.I.

Inst : Rostov-on-the-Don Institute of Medicine.

Title : Disturbances of Secretory Stomach Functions in
Inflammatory Brain Processes.

Orig Pub: Tr. Otchet. nauchn. konferentsii (Rostovsk.-n/D.
med. in-t) za 1956 g. Rostov-na-Donu, 1957, 91-93.

Abstract: In dogs with a Pavlov ventricle, experimental meningo-
encephalitis caused a sharp increase of gastric
juice secretion, as well as changes in the acidity
and digestive capacity of the gastric juice. Subse-
quently, these changes acquired the character of
phases. Even after 7.5 - 11 months, the secretion
did not become normalized.

Card : 1/1

GORDIYENKO, A.N.; KISELEVA, V.I.; SAAKOV, B.A.; TSYNKALOVSKIY, R.B.;
AZHIPA, Ya.I.; LET'YEN, A.V.; YEGOROV, A.I.; BONDAREV, I.M.;
ZHIGALINA, L.I.

Reflex production of antibodies caused by antigen injection into an
isolated spleen [with summary in English]. Biul. eksp. biol. i med.
43 no. 4: 80-82 Ap '57. (MIRA 10:10)

1. Iz kafedry patofiziologii (zav. - prof. A.N. Gordiyenko) Rostov-
skogo meditsinskogo instituta. Predstavlena akademikom A.D. Speran-
skim.

(ANTIBODIES

form by reflex in system caused by antigen inject. into
isolated spleen in dogs)

(SPLEEN, physiol.

antibody form by reflex in system caused by antigen
inject. into isolated spleen in dogs)

AZHIPA, Ya.I.; YEGOROV, A.I.; TSINGALOVSKIY, N.B.; SAAKOV, B.A.

Review of M.G.Durmish'ian's monograph on the "Mechanisms of the
effect of afferent stimulations." *Fiziol.zhur.* 43 no.5:483-484
My '57. (MIRA 10:12)

(REFLEXES) (DURMISH'IAN, M.G.)

GORDIYENKO, A.N., KISELEVA, V.I., SAAKOV, B.A., AZHIPA, Ya.I., TSYNKALOVSKIY,
R.B., LET'YEN, A.V., YEGOROV, A.I., BONDAREV, I.M., ZHIGALINA, L.I.

Further studies on the bioelectric potentials of nerves following
intracutaneous injection of antigens [with summary in English].
Biul.eksp.biol. i med. 45 no.4:96-99 Ap '58 (MIRA 11:5)

1. Iz kafedry patofiziologii (zav. - prof. A.N. Gordiyenko)
Rostovskogo meditsinskogo instituta (dir. - prof. Ye.M. Gubarev).
Predstavlena akademikom A.D. Speranskim.

(NERVE ENDINGS, physiology

bioelectric potentials after intracutaneous inject.
of E.coli antigen (Rus))

(ESCHERICHIA COLI,

antigen intracutaneous inject. causing change in
bioelectric potentials of receptors (Rus))

GORDIYENKO, A.N.; KISELEVA, V.I.; TSYNKALOVSKIY, R.B.; SAAKOV, B.A.;
AZHIPA, Ya.I.; LET'YEN, A.V.; YEGOROV, A.I.; OCHELENKO, L.N.;
BONDAREV, I.M.; ZHIGALINA, L.I.

Electrophysiological analysis of the action of antigens on the
angioceptors. Biul.eksp. biol. i med. 49 no.2:90-94 F '60.
(MIRA 14:5)

1. Iz kafedry patofiziologii (zav. - prof. A.N.Gordiyenko)
Rostovskogo meditsinskogo instituta. Predstavlena akademikom
A.D.Speranskim.

(ANTIGENS AND ANTIBODIES) (CAROTID SINUS)
(ELECTROPHYSIOLOGY)

GORDIYENKO, A.N.; KISELEVA, V.I.; TSYNKALOVSKIY, R.B.; SAAKOV, B.A.;
AZHIPA, Ya.I.; LET'YEN, A.V.; YEGOROV, A.I.

Determination of the threshold of stimulation of the skin receptors
by dysentery and typhoid antigens. Biul. eksp. biol. i med. 49
no.3:76-80 Mr '60. (MIRA 14:5)

1. Iz kafedry patologicheskoy fiziologii (zav: - prof. A.N.Gordiyenko)
Rostovskogo-na-Donu meditsinskogo instituta. Predstavlena daystvitel'ny
chlenom AMN SSSR A.D.Speranskim.
(DYSENTERY) (TYPHOID FEVER) (SKIN—INNERVATION)

YEJOROV, A. I., Cand. Technical Sci.;

Mr., All-Union Sci. Res. Inst. Water Supply, Sewerage, Hydraulic Engineering
and Engineering Hydrology (VODGEO) 1951-59

HYDROLOGY

MJT

3Mar.64

YEGOROV, A. I., Engineer

"Basic Design of Collecting Systems Draining Wash Water From Open, Fast Filters."
Sub 1 Dec 51, All-Union Sci Res Inst of Water Supply, Sewerage, Hydraulic Structures
and Hydrogeology (VODGEO)

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

YEGOROV, A.I., kandidat tekhnicheskikh nauk; TATARKIN, Ye.N., kandidat tekhnicheskikh nauk.

The use of V.V.Khovanskii measuring hopper flouts for measuring quantity consumption of reagents. *Biul.stroi.tekh.* 10 no.12:10 J1 '53. (MLM 6:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut vodosnabzheniya, kanulizatsii, gidrotekhnicheskikh sooruzheniy i inzhenernoy gidrogeologii.
(Volumetric apparatus)

YEGOROV, A. I.

124-11-12939

Translation from: Referativnyy Zhurnal, Mekhanika, 1957, Nr 11, p 94 (USSR)

AUTHOR: Yegorov, A. I.

TITLE: On the Loss of Head in a Pervious Sand Layer During the Passage of a Liquid Through a High-Speed Quartz Filter. (O potere napora v fil'truyushchem sloye peska pri promyvke skorykh kvartsevykh fil'trov)

PERIODICAL: V sb.: Issledovaniya po vodopodgotovke, Moscow, Gos. izdat-vo lit. po str-vu i arkhitekture, 1955, pp 84-92

ABSTRACT: The Author divides the head losses in a suspended layer of sand H , while the flow through the filter is directed upwardly, into a head loss h_i required to hold the sand in suspension and a head loss h_w expended in overcoming the turbulent friction arising from the movement of the water through the suspended layer of sand. $H = (h_i + h_w) \ell$, where ℓ is the thickness of the layer of sand, in meters. For the component head losses the formulas $h_i = (\gamma - 1)(1 - m_0)$ and $h_w = k(\omega - a)$ are adduced, where γ is the specific gravity of the sand, m_0 is the porosity of the sand when freely filled under water, ω is the unit through-flow through the sand in liters/sec. m^2 , a is the critical unit through-flow at which the sand just begins to be suspended in $m/sec. m^2$, and k is a coefficient equal to 0.0175 for filters with slot drainage without gravel layers and 0.008 with gravel layers.

V. A. Klyachko

Card 1/1

SOV/124-57-9-10302

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 9, p 58 (USSR)

AUTHOR: Yegorov, A. I.

TITLE: On the Design Calculation of Low-resistance Perforated Collecting Systems (O raschete sbornykh dyrchatykh sistem malogo soprotivleniya)

PERIODICAL: V sb. : Issledovaniya po vodopodgotovke. Moscow, Gos. izd-vo lit. po str-vu i arkhitekture, 1956, pp 233-267

ABSTRACT: The determination of the pressure loss is studied for perforated pipes submerged below the free surface of water with a variable flow rate increasing along the length of the pipe. The pressure losses are evaluated according to the general formula for variable discharge-rate flow in pipes of constant diameter:

$$h = K_h \left\{ \frac{a_k}{g} \int_0^{v_k} v dv + k \int_0^l i_f ds + \frac{1}{g} \int_0^{v_k} (a_k v - \theta) dv \right\}$$

Card 1/2 where θ is the projection of the added-mass velocity, K_h and k are experimentally obtained coefficients, and the subscript t refers

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On the Design Calculation of Low-resistance Perforated Collecting Systems

to the terminal cross section of the pipe. Parallel as well as radial pipe configurations are studied in the paper with either thick- or thin-walled pipes. As the result a general formula is obtained for the head-loss evaluation

$$h = K_h \left(2\alpha_k + k \frac{\lambda}{ed} - \beta \right) \frac{v_k^2}{2g}$$

here $\alpha_t=1.10$ and e equals 3 for parallel and 5 for radial pipes. For thick-walled pipes $\beta=0$. Further the paper investigates the shape of the jet at the entry to and the exit from the pipe perforations. The jet convergence angle relative to the perforations is found to be approximately 60° . In conclusion the calculation procedure for the design of perforated collecting systems is given. Bibliography: 8 references.

P. G. Kiselev

Card 2/2

YEGOROV, A. I.; ARKHANGEL'SKAYA, Z. V.

Technology of using reagents in treating river water at large
liming plants. Vod. i san. tekhn. no. 5:13-18 My '58. (MIRA 11:6)
(Water--Purification)

YEGOROV, A. I.: ARKHANGEL'SKAYA, Z. V.

Investigating and regulating the work of contact clarifiers under
conditions of industrial use. Issl. po vodopodg. no. 3:75-124
'59. (MIRA 12:9)

(Filters and filtration)

YEGOROV, A.I.; MINKIS, I.M.

Determination of the discharge coefficient as applied to distribution and collection of water through perforated pipes. Issl. po vodopodg. no.3:125-142 '59. (MIRA 12:9)
(Water--Distribution)

YEGOROV, A.I., starshiy nauchnyy sotrudnik; ARKHANGEL'SKAYA, Z.V.,
nauchnyy sotrudnik

Investigating and regulating the work of contact clarifiers.
Vod. i san. tekhn. no. 8:21-23 Ag '59. (MIRA 12:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut vodosnab-
zheniya, kanalizatsii, gidrotekhnicheskikh sooruzheniy i
inzhenernoy gidrogeologii (VODGEO).
(Water--Purification)

YEGOROV, A.I.; KASTAL'SKIY, A.A., doktor tekhn.nauk, nauchnyy red.;
NINEMYAGI, D.K., red.izd-va; GOL'BERG, T.M., tekhn.red.

[Hydraulic calculation of pipe systems for water distribution
in purifying structures of water-supply systems] Gidravli-
cheskii raschet trubchatykh sistem dlia raspredelenia vody
v vodoprovodnykh ochistnykh sooruzheniyakh. Moskva, Gos.izd-vo
lit-ry po stroit., arkhitekt. i stroit.materialam, 1960. 122 p.
(MIRA 14:4)

(Water-supply engineering--Tables, calculations, etc.)

YEGOROV, A.I.

Transient processes in the main channel with successive branch pipes.
I.AN Kir.SSR.Ser.est.1 tekhn.nauk 2 no.7:169-179 '60. (MIRA 14:4)
(Hydrodynamics)

YEGOROV, A.I.

Determination of head losses due to vortex resistances in
water distributing and collecting pipe systems. Vod. 1
dan. tekhn. no.2:17-21 F '61. (MIRA 14:7)
(Pipe—Hydrodynamics)

YEGOROV, A.I. (Frunze)

Optimum control of processes in some systems with distributed
parameters. Avtom. i telem. 25 no.5:613-623 My '64.
(MIRA 17:9)

GANZHA, V.D.; YEGOROV, A.I.; KAMINKER, D.M.; KOLYADIN, A.B.;
KONOPLEV, K.A.; SAYKOV, Yu.P.; SHAROV, V.T.

Electrophoretic filter for purifying reactor water. Atom.
energ. 19 no.4:350-354 0 '65. (MIRA 18:11)

YEGOROV, A. I.

YEGOROV, A. I. — "On the Asymptotic Behavior of Solutions of Integral-Differential Equations of the Walter Type." Acad Sci Uzbek SSR. Inst of Mathematics and Mechanics imeni V. I. Romanovskiy. Tashkent, 1955. (Dissertation for the Degree of Candidate in Physicomathematical Sciences)

SOURCE Knizhnaya Letopis', No 6 1956

YEGOROV, A. I.

PLATE I BOOK EXPLANATION 507/1796

Abadmiya bank Ubbekoy SSR, Tashkent. Institut matematiki i mekhaniki
Issledovaniya po matematicheskomu analizu i mekhanike v Ubbekistane (Research in
Mathematical Analysis and Mechanics in Ubbekistan) Tashkent, Izd-vo AN
Ubbekskoy SSR, 1960. 259 p. Errata slip inserted. 1,000 copies printed.

Sponsoring Agency: Abadmiya bank Ubbekskoy SSR. Institut matematiki i mekhaniki
Imeni V.I. Romanovskogo.

Reprints: I.S. Arhanyth, Corresponding Member, Academy of Sciences USSR, Ed.:
I.G. Geynsinaya, Tech. Ed.: Z.P. Gor'kovaya.

FOREWORD: This collection of articles is intended for mathematicians, mechanics,
engineers, and students taking advanced courses in divisions of physics and
mathematics at universities and pedagogical schools of higher education.

CONTENT: The collection contains 17 articles dealing with the results of investi-
gations on the theory of integrating differential equations in mathematical
physics and mechanics, the theory of numbers, and the problem of the best approx-
imation of functions. Individual articles discuss elasticity, flow along a
rotating disk, transverse vibrations of beams, motion of an automobile after
impact, thermal stress, etc. No personalities are mentioned. References
accompany 11 articles.

6. Dobryshchenko, Ye. M. and V. A. Sadovoy. On the Unsteady Flow of a Viscous
Incompressible Liquid Close to a Rotating Disk 86
7. Yegorov, A. I. On the Asymptotic Behavior of Solutions of Integro-
Differential Equations of the Volterra Type 114
8. Zhidkov, G. M. On the Distribution of Mixed Approximation Relative
to the Solution Being Sought for Equation $y'' = f(x, y)$ 127
9. Zolotarev, A. P. Solving Boundary Problems of Laplace Equations by an
Interpolation Method 133
10. Zaslavskiy, M. On the Behavior of Solutions of Sequences of
Nonlinear Integro-Differential Volterra-Type Equations with a Small
Parameter at the Highest Derivative 133
11. Khabulov, V. I. Volterra-Type Integral Equations for Transverse
Vibrations of Beams 173
12. Kiklin, I. S. On the Motion of an Automobile After a Lateral Impact
Theorem 183
13. Losikov, P. P. The Chaplygin Method in the Proof of the Existence
Theorem 203
14. Zaslavskiy, V. S. On the Functions Connected with the Laplace
Equation in Paraboloidal Coordinates 213
15. Zhabitskiy, M. A. Additive Properties of Certain Sequences of
Numbers 220
16. Khabulov, M. E. Solving a Nonlinear Parabolic Equation 242
17. Zay, I. P. On the Separation of Spherical Coordinates in Equations
of Natural Stress 254

Proof Egorov, A. I. Existence theorem for the solution of an
 integro-differential equation. Kirgiz Gos Univ Trudy
 Fiz-Mat Fak 1953, no. 2, 119-123 (Russian)
 By the usual method of successive approximations the

author proves that the equation

$$\frac{dy}{dx} = f(x, y) + \lambda \int_a^b K(x, s) f_1(s, y(s)) ds$$

has a unique integral curve through every point of a
 certain rectangle $a \leq x \leq b$, $c \leq y \leq d$ if $f(x, y)$, $f_1(x, y)$ as
 functions of y are Lipschitzian

M Golomb

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S/757/61/000/001/001/010

AUTHOR: Yegorov, A.I.

TITLE: On the maximum principle in the theory of optimal regulation.

SOURCE: Akademiya nauk Kirgizskoy SSR. Institut fiziki, matematiki i mekhaniki. Issledovaniya po integro-differentsial'nym uravneniyam v. Kirgizii. no.1. Frunze, 1961:213-242. ✓

TEXT: The paper generalizes the Pontryagin maximum principle to the case when a differential equation is examined in real Hilbert space. Reference is made to antecedent works by L.S. Pontryagin and his students (cf., e.g., Boltyanskiy, V.I., Gamkrelidze, R.V., Pontryagin, L.S. The theory of optimal processes. Akad. nauk SSSR, Izv., ser. matem., v.24, 1960) which set forth the necessary conditions for optimization of a process that is described by a system of ordinary differential equations. Several theorems relating to the existence and uniqueness of the solution of differential equations in Hilbert space are stated, also theorems on the dependence of the solutions on the given initial data and the parameter. The study examines the complete real Hilbert space H and also the region D of some complete normed space C (a region which, in particular, may coincide with C). Any abstract function $u(t)$ determined on some time segment $t_0 \leq t \leq T$ with values in D is termed control. A class of admissible controls is specified by 3 conditions:

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(1) A multiplicity of functions $u(t)$ of class U is uniformly bounded on the segment $[t_0, T]$ and each function is strongly measurable according to Bochner on that segment. (2) If $u(t) \in U$, v is a constant element of U , and $t_0 \leq t' \leq t'' \leq T$, then $u_1(t) = v$ for $t' \leq t \leq t''$ and $u_1(t)$ for $t < t'$ and $t > t''$ will also pertain to U . (3) If the segment $[t_0, T]$ can be separated by points into a denumerable number of separate segments, on each of which $u(t) \in U$, then the control $u(t)$ pertains to U on the entire segment, and $u_1(t) = u(t-a)$, $t_0+a \leq t \leq T$ pertains to U . Given the differential equation $dx/dt = f(x, u)$, (2.1), the problem posed is to determine that one control, amongst all those which transport point x_0 into point x_1 , for which the linear real functional $F(I)$ assumes its minimum value, wherein

$I = \int_{t_0}^{t_1} \phi_0(x(t), u(t)) dt$, (2.3), the integral being intended in the sense of Bochner,

and where $\phi_0(x, u)$ is an operator, continuous in x and u , with values in the entire real Hilbert space H_1 , which has a strong derivative with respect to x in any point (x, u) . Several particular cases are examined. The maximum principle is demonstrated and then extended to nonstationary motions. In conclusion the maximum principle demonstrated here is applied to several particular cases. It is noted that, if the spaces H and H_1 are taken to be, respectively, an n -dimensional and a

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On the maximum principle in the theory...

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one-dimensional Euclidean space, then Pontryagin's maximum principle follows from the theorem demonstrated. There are 8 references, of which 4 are Russian-language Soviet publications, 1 is German (Bochner, S. Integration von Funktionen, deren Werte die Elemente eines Vektorraumes sind. Fund.Math., no.20, 1933) and 3 are translations into Russian of Western publications (Hille, E. Functional analysis and semigroups, orig. publ. in Am. Math. Soc., Colloq. Publ., 1948; Sansone, G. Ordinary differential equations, v.2; Coddington, E.A., Levinson, N., Theory of ordinary differential equations).

ASSOCIATION: None given.

Card 3/3

4244.1

AUTHOR: Yegorov, A.I.

TITLE: On one optimal problem.

SOURCE: Akademiya nauk Kirgizskoy SSR. Institut fiziki, matematiki, mekhaniki. Issledovaniya po integro-differentsial'nym uravneniyam v Kirgizii. no. 17. Frunze, 1961, 275-288.

NOTE: The paper formulates Pontryagin's maximum principle and discusses some of its applications. Reference is made to antecedent works by L.S. Pontryagin and his students (cf., for example, Boltyanskiy, V.G., Gamkrelidze, A.V., Pontryagin, L.S. The theory of optimal processes. Akad. nauk SSSR, Izv. matemat. v. 24, 1960). In one example the problem of the automatic guidance of a rocket toward a moving target is examined. The target has a velocity which is a prescribed function of time, $v=v(t)$. A guided rocket M departs from point O on the surface of the earth at time $t=0$; the velocity of the rocket is also a prescribed time function, $A=A(t)$, having a direction cosine $u_1(t)$; the time, t_1 , required for the rocket to attain the target, is to be minimized. The desired trajectory, if one exists, is determined by the formulas $x_1(t) = u_1 \int_0^t A(t) dt$, (32), where u_1 is

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On one optimal problem.

S/157/61/006/001/01, 10

determined from the relationships $u_i = \frac{1}{A} (x_i^0 + \int_0^t v_i(t) dt)$, $i=1, 2, 3$ (30). In the

general case the problem posed cannot be solved definitely, because the solution

of the expression $A^2 = \sum_{i=1}^3 (x_i^0 + \int_0^t v_i(t) dt)^2$ (29), where $\bar{A} = \int_0^t A(t) dt$ (31), cannot

be found. In the case of the automatic guidance of a rocket toward a target in which v and A are constants (cf., e.g., Kel'zon, A.S. *Dinamicheskiye zadachi kibernetiki*. Dynamic problems of cybernetics. Sudpromgiz, 1959; Locke, A.S., et al., *Guidance*. In Series, "Principles of Guided Missile Design." New York: Van Nostrand Co., 1955), the problem of the determination of the optimal trajectory in 3-dimensional space reduces to the analogous plane problem (proof of this proposition is given). The various cases of a rocket velocity greater and smaller than, or equal to, the target velocity are examined. There are 3 references (all references in abstract), including 2 Soviet and 1 Western publication, the latter cited in its Russian-language translation.

ASSOCIATION: None given.

Card 2/2

YEGOROV, A. I.

~~YEGOROV~~, A. I.

Transient Processes in Automatic Control Objects with Distributed Parameters.
p. 115

TRANSACTIONS OF THE 2ND REPUBLICAN CONFERENCE ON MATHEMATICS AND MECHANICS
(TRUDY VTOROY RESPUBLIKANSKOY KONFERENTSIY PO MATEMATIKE I MEKHANIKE), 184
pages, published by the Publishing House of the AS KAZAKH SSR, ALMA-ATA, USSR, 1962

L 17131-63 EWT(d)/EPF(n)-2/BDS AFFTC/ASD/APGC/IJP(O)/SSD Pu-4/Pg-4/

PK-4/PI-4/PO-4/Pq-4 BC

ACCESSION NR: AP3004115

S/0040/63/027/004/0628/0696

AUTHOR: Yegorov, A. I. (Frunze)

81

TITLE: Optimal control by processes with regulated units

SOURCE: Prikladnaya matematika i mekhanika, v. 27, no. 4, 1963, 688-696

TOPIC TAGS: optimal control, derivative discontinuity, maximum principle

ABSTRACT: The author considers the controllable process described by

$$L_i |u_i| \equiv \frac{\partial^2 u_i}{\partial x \partial t} + b_i(x, t) \frac{\partial u_i}{\partial x} + c_i(x, t) \frac{\partial u_i}{\partial t} = f_i(x, t, u_1, \dots, u_n, v) \quad (i=1, \dots, n) \quad (1)$$

where the functions b_i and c_i have continuous second partial derivatives in x and t in $G = \{(x, t): 0 \leq x \leq l, 0 \leq t \leq T\}$, and v is the controlling parameter taking values from a convex region V (open or closed) of some r -dimensional Euclidean space. The functions f_i are assumed continuous in x and t , and twice continuously differentiable in $u_1, \dots, u_n$ and v ; and the u_i satisfy Goursat conditions

$$u_i(x, 0) = \varphi_i(x), \quad u_i(0, t) = \psi_i(t) \quad (2)$$

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where ϕ_i and ψ_i are continuously differentiable and satisfy the conditions of conjunction $\phi_i(0) = \psi_i(0)$. For the class of attainable controls he takes the set of bounded, functions, piecewise continuous in x and t , defined on G with values in V . Let A_i , $i = 1, \dots, n$, be a given set of real numbers, $\alpha_i(x)$, $\beta_i(t)$, $\gamma_i(x, t)$ be given continuous functions on G . Let u be the solution of (1), (2) corresponding to a given v and let

$$S = \sum_{i=1}^n \left[A_i u_i(l, T) + \int_0^l \alpha_i(x) u_i(x, T) dx + \int_0^T \beta_i(t) u_i(l, t) dt + \int_0^l \int_0^T \gamma_i(x, t) u_i(x, t) dt dx \right] \quad (3)$$

where l and T are constants determined from the definition of G . That v minimizing (maximizing) S is called min-optimal (max-optimal). Let

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$$M_i[w_i] \equiv \frac{\partial^2 w_i}{\partial x \partial t} - \frac{\partial}{\partial x} (b_i w_i) - \frac{\partial}{\partial t} (c_i w_i) = \sum_{v=1}^n \frac{\partial f_v(x, t, u, v)}{\partial u_i} w_v - \gamma_i(x, t) \quad (4)$$

with

$$w_i(x, T) = \int_0^x \alpha_i(\xi) \exp\left(\int_0^x c_i(\xi, T) d\xi\right) d\xi - \lambda_i \exp\left(\int_0^x c_i(\xi, T) d\xi\right)$$

$$w_i(t, t) = \int_0^t \beta_i(\tau) \exp\left(\int_0^t b_i(t, \tau) d\tau\right) d\tau - \lambda_i \exp\left(\int_0^t b_i(t, \tau) d\tau\right), \quad (i=1, \dots, n) \quad (5)$$

The solution of (5), (6) is unique. Define the Hamiltonian

$$H(u(x, t), w(x, t), v, x, t) = \sum_{i=1}^n w_i(x, t) f_i(x, t, u(x, t), v) \quad (6)$$

The maximum condition is said to be satisfied if

$$H(u(x, t), w(x, t), r(x, t), x, t) ((=)) \sup H(u(x, t), w(x, t), r, x, t) (r \in V) (H), \quad (7)$$

where $((=))$ denotes equality for all points of G with the possible exception of a set of points lying on a finite number of lines with zero area. The minimum condition is defined analogously.

Theorem 1. (Maximum Principle). In order for an attainable control v to be min-

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optimal (max-optimal) it is necessary that it satisfy the minimum (maximum) condition.

Theorem 2. In the case

$$L_i [u_i] = \sum_{k=1}^n a_{ik} (x, i) u_k + \varphi_i (v) \quad (8)$$

the previous condition is also sufficient for local optimality. Orig. art. has: 29 formulas.

ASSOCIATION: none

SUBMITTED: 23Apr63

DATE ACQ: 15Aug63

ENCL: 00

SUB CODE: MM

NC REF SOV: 011

OTHER: 000

Card 4/4

L 23306-65 EWT(d) Pg-4 IJP(c)

ACCESSION NR: AR5002283

S/0044/64/000/010/V028/V029

SOURCE: Ref. zh. Matematika, Abs. 10V189

AUTHOR: Yegorov, A. I.

TITLE: Optimal processes in some systems with distributed parameters

CITED SOURCE: Sb. Materialy 12-y Nauchn. konferentsii prof. -prepodavat. sostava Fiz.-matem. fak. Kirg. un-t. Sekts. matem. Frunze, 1964, 45-49

TOPIC TAGS: distributed parameter, parabolic equation system, elliptic operator, directional parameter, piecewise continuous function, conjugate boundary value problem, optimal allowed direction

TRANSLATION: The parabolic system of the equations (1) is discussed

$$L_i y = \frac{\partial y_i}{\partial t} - L_i y = f(t, x, y, y_x, u), \quad i=1, \dots, m, \quad (1)$$

$L = (L_1 \dots L_m)$ is the elliptic operator, finite in some region G with boundary Γ ; μ — the directional parameter, assuming values from the annex region u

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ACCESSION NR: AR5002283

of the n -dimensional Euclidian space. Initial and limiting conditions are given $y(0, x) = a(x)$ for $x \in G$, $P_i(t, x)y = \varphi_i(t, x, y, v)$ for $x \in \Gamma$, where P_i are the differential operators of the first order, $i = 1, 2, \dots, m$, and the directional parameter assumes values from some region of the v -dimensional Euclidian space. The functional of the form (2) is discussed

$$S = \sum_{i=1}^m \left[\int_0^T \alpha_i(x) y_i(t, x) dx + \int_0^T \int_G \beta_i(t, x) y_i(t, x) dx dt + \int_0^T \int_\Gamma \gamma_i(t, x) y_i(t, x) d\sigma dt \right]. \quad (2)$$

Here $\alpha_i(x)$, $\beta_i(t, x)$, $\gamma_i(t, x)$ are given functions. Among all admissible directions $(u(t, x), v(t, x))$ (piece-wise continuous functions with values in $U \times V$) the one is sought for which S will reach a minimum (it is assumed that a unique solution of the boundary-value problem corresponds to each allowed direction). An auxiliary function $z(t, x)$ is introduced which is the solution of the conjugate boundary-value problem

$$M_{ij} z = - \sum_{i=1}^m \left[\frac{\partial f^s}{\partial y_i} z_s - \sum_{k=1}^n \frac{d}{dx_k} \left(\frac{\partial f^s}{\partial y_{ik}} z_s \right) \right] + \beta_i(t, x); \quad (3)$$

$x \in G;$

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$$Q_i(t, x)z = \sum_{i=1}^m \left[\frac{\partial p_i}{\partial y_i} + \sum_{k=1}^n \frac{\partial f_i}{\partial y_{ik}} X_k(x) \right] z_i - \gamma_i(t, x) \quad (4)$$

for $x \in \Gamma$: $z_i(Tx) = -a_i$, for $x \in G$ ($i = 1, \dots, m$), where M is the operator conjugate to the operator L_{it} ; Q_i — the conjugate limiting conditions $X_k(x)$ — the directional cosines of the exterior normal to the boundary Γ . The following functions are introduced:

$$H(t, x, y, y_x, z, u) = \sum z_i f_i(t, x, y, y_x, u),$$

$$h(t, x, y, z, v) = \sum z_i \varphi_i(t, x, y, v).$$

The following theorem is substantiated: Obtention of the optimal allowed direction ($u^*(t, x)$, $v^*(t, x)$) requires finding a solution $z(t, x)$ of problem (3), (4) such that

$$H(t, x, y, y_x, z, u^*) = \sup_{u \in U} H(t, x, y, y_x, z, u); \quad x \in G,$$

$$h(t, x, y, z, v^*) = \sup_{v \in V} h(t, x, y, z, v); \quad x \in \Gamma, \quad (5)$$

where the equality (5) is correct everywhere, except maybe for the terminal figure of the multiform dimension, lesser than G and Γ correspondingly.

SUB CODE: MA

ENCL: 00

Card 3/3

ACCESSION NR: AP4039565

S/0199/64/005/003/0500/0508

AUTHOR: Vegerov, A. I.

TITLE: A variational problem in the theory of elliptic equations

SOURCE: Sibirskiy matematicheskiy zhurnal, v. 5, no. 3, 1964, 500-508

TOPIC TAGS: elliptic equation, variational problem, nonlinear equation, nonlinear elliptic equation, optimal process theory, control system, optimization

ABSTRACT: The paper considers a variational problem for a nonlinear, elliptic equation which is very close to the problems considered in the theory of optimal processes. The method for its solution is based on the construction of a formula for increasing a minimizable (maximizable) functional, from which, by using certain estimates, the necessary conditions are obtained for the functional to attain its minimum (maximum). Such a method has been used in the study of optimal control systems described by ordinary differential equations. In earlier papers, the author used this method to find the necessary conditions of optimality for a system with distributed parameters. Orig. art. has: 26 numbered formulas.

ASSOCIATION: none

Card 1/2

ACCESSION NR: AP4036503

S/0103/64/025/005/0613/0623

AUTHOR: Yegorov, A. I. (Frunze)

TITLE: Optimized control of processes in some distributed-parameter plants

SOURCE: Avtomatika i telemekhanika, v. 25, no. 5, 1964, 613-623

TOPIC TAGS: automatic control, optimized automatic control, distributed parameter plant, controlled plant, distributed parameter plant control

ABSTRACT: The problem is theoretically considered of an optimized control of the processes which can be described by this set of equations with the second-order partial derivatives:

$$z_{ixy} = f_i(x, y, z_1, \dots, z_n, z_{1x}, \dots, z_{nx}, z_{1y}, \dots, z_{ny}, v) \quad (i = 1, \dots, n).$$

It is assumed that in the region G ($0 \leq x \leq a, 0 \leq y \leq b$) the functions f_i have continuous first-order derivatives with respect to x and y and that they are

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ACCESSION NR: AP4036503

twice continuously differentiable with respect to other arguments. Imposed on the functions z_i are the Goursat's conditions $z_i(0, y) = \varphi_i(y)$, $z_i(x, 0) = \psi_i(x)$ ($i = 1, \dots, n$), where φ_i and ψ_i are continuously differentiable with respect to x and y , within the region G , and satisfy the conjugation $\varphi_i(0) = \psi_i(0)$. The necessary conditions of optimality are found. The same conditions prove to be locally sufficient in the case where the differential equations are linear. Orig. art. has: 80 formulas.

ASSOCIATION: none

SUBMITTED: 12Apr63

ATD PRESS: 3071

ENCL: 00

SUB CODE: IE, MA

NO REF SOV: 009

OTHER: 003

Card 2/2

L 25966-66 ENT(m)/ETC(f)/EPF(n)-2/EWG(m) IJP(c) WW

ACC NR: AP5026440

SOURCE CODE: UR/0089/65/019/004/0350/0354

AUTHOR: Ganzha, V. D.; Yegorov, A. I.; Kaminker, D. M.; Kolyadin, A. B.
Konoplev, K. A.; Saykov, Yu. P.; Sharov, V. T.

ORG: none

TITLE: Electrophoretic filter for reactor water purification

SOURCE: Atomnaya energiya, v. 19, no. 4, 1965, 350-354

TOPIC TAGS: nuclear research reactor, nuclear reactor operation, water purification equipment, water cooled nuclear reactor, industrial filter, electrophoresis, corrosion, stainless steel / VVR-M nuclear reactor, 1Kh18N9T stainless steel

ABSTRACT: In January, 1962, a formation of turbidity in the primary loop of the VVR-M reactor of the Physicotechnical Institute im. A. F. Ioffe, AN SSSR, was observed. In June, the turbidity was so strong that a special electrophoretic filter for water purification was installed. The turbid water contained a 54-pct suspension of hydrate aluminum oxide which was originated by the corrosion of aluminum reactor vessel and fuel-element cans. A daily amount of about 2 g/Mw of suspended particles was discharged into the water. The installed filter was equipped with the platinized titanium anodeplates, while the cathode

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ACC NR: AP5026440

plates were made of 1 18 9T stainless steel. A cylindrical prototype of the filter was experimentally tested and the results were explained and graphically illustrated. The tests showed that the chemical composition of turbid and filtered water was as follows:

	<u>Turbid</u>	<u>Filtered</u>
Al ₂ O ₃ in m/kg	3.0	0
Fe+3 " "	0.4	0.18
SiO ₂ " "	6.0	1.3
O ₂ " "	0.96	2.96
Optical density	0.065	0.008

The selected filter design data are summarized in the following table:

Water flow rate in kg/hr	250-500
Effective water flow in cu m/hr	0.5
Electrode voltage in v	110-220
Distance between electrodes in cm	1
Contact time in min. (at 250 l/hr)	2
Total filter volume in liter	10.7
Inter-electrode volume in liter	7.5
Electrode size in mm	170x572
Number of anode plates	4
Number of cathode plates	5
Filter dimensions in mm	400x224x935

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ACC NR: AP5026440

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The filter has a small hydraulic resistance and needs only about 0.5 kw for its operation. A flow diagram represents schematically the circulation of water in the primary loop of the reactor. Another figure shows a photo of the electrophoretic filter which was successfully used for purifying water in the VVR-M reactor. The authors express their gratitude to Academician B. P. Konstantinoff for his continuous interest. Expressions of thanks are also given to V. P. Rodzevich (for apparatus design), V. D. Trenin and R. N. Rodionov (for analysis) and to D. A. Yashin and B. S. Razov for their assistance. Orig. art. has: 2 tables and 6 figures.

SUB CODE: 18/3 / SUBM DATE: 4July64 / ORIG REF:001 / OTH REF:002

Cerd 3/3 FW

100833-66 EWT(d)/EPF(n)-2/ENP(v)/ENP(k)/ENP(h)/ENP(l) IJP(c) WW/BC

ACCESSION NR: AP5015903

UR/0103/65/026/006/0977/0994
62-505.3

AUTHOR: Yegorov, A. I. (Frunze)

TITLE: Optimal processes in the systems containing distributed-parameter plant

SOURCE: Avtomatika i telemekhanika, v. 26, no. 6, 1965, 977-994

TOPIC TAGS: optimal automatic control, automatic control, automatic control design, automatic control system, automatic control theory

ABSTRACT: Complex automatic-control systems comprising both distributed- and concentrated-parameter elements and describable by partial differential equations are considered. Usually, auxiliary elements have concentrated parameters. The plant is described by thermal-conduction-type equations with widely used boundary and initial conditions; such equations are applicable to the heat-, mass-transfer, and other similar cases. Among all permissible controls, such a control $w(t, x)$ is found that the solution $(u_i(t, x), y^0(t), y^1(t))$ of the boundary problem realizes a minimum of this linear functional:

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ACCESSION NR: AP5015903

$$S_i = \sum_{i=1}^n \left\{ \int_0^T \left[A_i^0(t) \frac{\partial u_i^0}{\partial x} + A_i^1(t) \frac{\partial u_i^1}{\partial x} \right] dt + \int_0^1 B_i(x) u_i(T, x) dx + \right. \\ \left. + \int_0^1 \int_0^1 C_i(t, x) u_i(t, x) dx dt \right\} + \sum_{j=1}^l c_j^0 y_j^0(T) + \sum_{k=1}^m c_k^1 y_k^1(T), \quad (8_i)$$

where $A_i^k(t)$, $B_i(x)$ and $C_i(t, x)$ are the defined continuous functions, c_i^k are the specified real constants, and T is the constant determining the region Q . Orig. art. has: 105 formulas.

ASSOCIATION: none

SUBMITTED: 12Jun64

ENCL: 00

SUB CODE: DP, IE

NO REF SOV: 017

OTHER: 000

Card 2/2

L 00873-66 EWT(d)/EPF(n)-2/EWP(v)/EWP(k)/EWP(h)/EWP(l) LJP(c) MM/BC

ACCESSION NR: AP5019400

UR/0103/65/026/007/1188/1196

62-505.3

AUTHOR: Yegorov, A. I. (Frunze)

42
B

TITLE: Optimal processes in the systems containing distributed-parameter plant.
Part 2

SOURCE: Avtomatika i telemekhanika, v. 26, no. 7, 1965, 1188-1196

TOPIC TAGS: optimal automatic control, ^{44, 55}automatic control, automatic control design,
automatic control system, ⁴⁴automatic control theory

ABSTRACT: This is a continuation of the author's article (see AP5015903 abstract) dealing with the control systems describable by ordinary and partial differential equations. Necessary and sufficient optimality conditions are determined for a system describable by linear equations with linear boundary conditions. It is proven that the problems including nonlinear-with-respect-to- $y_1^k(T)$ functionals can be reduced to the linear case considered in the Part 1. Various constraints imposed on the permissible controls are considered. Orig. art. has: 77 formulas.

ASSOCIATION: none

SUBMITTED: 15 Jun 64

ENCL: 00

SUB CODE: DP, IE

NO REF SOV: 005

OTHER: 000

Card 1/1

L 10895-66 EWT(1)/T/EWP(1)

ACC NR: AP6001671

SOURCE CODE: UR/0038/65/029/006/1205/1260

AUTHOR: ^{44, 55}Yegorov, A. I.

ORG: none

TITLE: ^{16, 44, 55}Optimum processes in systems with distributed parameters in certain problems in the invariance theory

SOURCE: AN SSSR. Izvestiya. Seriya matematicheskaya, v. 29, no. 6, 1965, 1205-1260

TOPIC TAGS: optimum process, invariance theory, optimality condition, ~~distributed~~ parameters, control system, automatic control theory

ABSTRACT: Optimum processes in systems described by various boundary-value problems for partial differential equations (systems with distributed parameters) are analyzed. The author stresses that the problem of controlling more complex systems can not be solved directly with the aid of Pontryagin's maximum principle. He describes several attempts at generalizing this principle for solving optimum problems in control systems with distributed parameters and presents a method which can be utilized when the behavior of a control system is described by hyperbolic, parabolic, or elliptic equations. The article consists of five sections. In sections one and two, various problems of optimum control of processes described by boundary-value problems for hyperbolic equations are analyzed. Necessary optimality conditions are formulated in the form of the maximum principle. In section three, the relationships between the

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UDC: 519.3

L 10895-66

ACC NR: AP6001671

optimum problem investigated in sections one and two and the problems of the classical variational calculus are established. It is shown that the Euler-Ostrogradskiy equations can be derived from the maximum principle when the control domain coincides with the entire space. When this domain is closed, the Legendre condition can not be satisfied along the optimum surface. In section four, the optimum control processes described by parabolic equations are analyzed. A formula is derived for the increment of the performance functional which serves as the basis on which the optimality condition is established. Section five deals with problems of invariance theory. Necessary and sufficient invariance conditions with respect to external responses are derived for linear equations in the case when functionals analogous to the performance functionals utilized in sections 1-4 are taken as the invariance criteria. Orig. art. has: 130 formulas. [LK]

SUB CODE: 12/ SUBM DATE: 13Mar64/ ORIG REF: 029/ OTH REF: 011/ ATD PRESS:

4/72

HW
Card 2/2

L 20692-66 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l) IJP(a)

ACC NR: AP6008425

SOURCE CODE: UR/0039/66/069/003/0371/0421

AUTHOR: Yegorov, A. I. (Frunze)

28
B

ORG: none

TITLE: Necessary optimality conditions for systems with distributed parameters

SOURCE: Matematicheskii sbornik, v. 69, no. 3, 1966, 371-421

TOPIC TAGS: optimal control, sufficient optimality condition, hyperbolic equation, parabolic equation

ABSTRACT: The problem of optimal control of systems with distributed parameters (control systems whose behavior is described by partial differential equations) is analyzed for the particular cases of processes described by boundary-value problems for hyperbolic and parabolic equations under the general assumptions that the control of a system can be realized by means of control parameters contained in the equations as well as in boundary conditions. The variability domain of independent variables is considered, in general, as not fixed. The optimal problem is formulated as follows: from all allowable controls which take the system described by partial differential equations from the state characterized by boundary conditions

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UDC: 517.946.9

L 20692-66

ACC NR: AP6008425

into the second state characterized by a certain set of constraints upon the solution of the corresponding boundary-value problem it is required to find a control which minimizes the performance functional. The class of allowable functions is considered as complete. Necessary optimality conditions were derived for the process described by hyperbolic equations with Goursat boundary conditions. It is indicated that the same can be applied to other types of boundary conditions. Optimality conditions for the processes described by parabolic equations are derived for two forms of boundary conditions (two boundary-value problems). Orig. art. has: 156 formulas. [LK]

SUB CODE: 12 SUBM DATE: 25Nov64/ ORIG REF: 018/ OTH REF: 002
ATD PRESS: 4723

Card 2/2 BK

ACC NR: AP7002927

SOURCE CODE: UR/0020/66/171/006/1261/1263

AUTHOR: Yegorov, A. I.

ORG: Institute of Automation, Academy of Sciences KirgSSR (Institut avtomatiki Akademii nauk KirgSSR)

TITLE: Optimality conditions for systems containing units with distributed parameters

SOURCE: AN SSSR. Doklady, v. 171, no. 6, 1966, 1261-1263

TOPIC TAGS: optimal control, boundary value problem, partial differential equation

ABSTRACT: The following theorem is offered: Let $w(t, x)$ be a permissible control in a region D which carries the system

$$u_{tt} - u_t^2 u_{txx} = f_i(t, x, u_1, \dots, u_n, u_{tx}, \dots, u_{nx}, a),$$

$$0 < t \leq T, \quad 0 < x < 1; \quad (1)$$

$$u_{tx}^0 = \varphi_i^0(t, u_1^0, \dots, u_n^0, y_1^0, \dots, y_m^0, \beta^0),$$

$$u_{tx}^1 = \varphi_i^1(t, u_1^1, \dots, u_n^1, y_1^1, \dots, y_m^1, \beta^1); \quad (2)$$

$$u_i(0, x) = u_{i0}(x), \quad i = 1, \dots, n, \quad (3)$$

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UDC: 519.3

ACC NR: AP7002927

with initial conditions

$$y_j^0(0) = y_{j0}^0, \quad y_k^1(0) = y_{k1}^1, \quad j = 1, \dots, l; \quad k = 1, \dots, m, \quad (4)$$

such that $\alpha(t, x)$ satisfies

$$\begin{aligned} \dot{y}_j^0 &= \psi_j^0(t, u_1^0, \dots, u_n^0, y_1^0, \dots, y_l, \beta^0), & j &= 1, \dots, l, \\ \dot{y}_k^1 &= \psi_k^1(t, u_1^1, \dots, u_n^1, y_1^1, \dots, y_m^1, \beta^1), & k &= 1, \dots, m, \end{aligned} \quad (5)$$

into a state such that the solution of (1)-(5) will satisfy

$$\Phi_\alpha(T, x, u(T, x)) = 0, \quad \alpha = 1, \dots, v;$$

$$\int_0^1 \Psi_\beta(T, x, u(T, x)) dx = c_\beta, \quad \beta = 1, \dots, \mu, \quad (6)$$

$$y_\gamma^0(T) = y_{\gamma n}^0, \quad \gamma = 1, \dots, d \leq l; \quad y_\delta^1(T) = y_{\delta l}^1, \quad \delta = 1, \dots, e \leq m,$$

and carrying the functions $u(t, x)$, $y^k(t)$, $v(t, x)$, and $z^k(t)$ into the corresponding solutions of (1)-(5) and (6) for certain $A_\alpha(x)$, b_β . Then for this to be an optimal

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ACC NR: AP7002927

control it is necessary that: 1) $w(t, x)$ satisfy the conditions of a maximum; 2) all the functions indicated and the constants satisfy the equation

$$\frac{dS}{dt} + \int_0^1 \left[\sum_{\alpha=1}^v A_{\alpha}(x) \frac{d^{\alpha} D_{\alpha}}{dt^{\alpha}} + \sum_{\beta=1}^{\mu} b_{\beta} \frac{d^{\beta} V_{\beta}}{dt^{\beta}} \right] dt - \sum_{j=1}^d z_j^0(T) \dot{y}_j^0(T) + \sum_{k=1}^l z_k^1(T) \dot{y}_k^1(T) = 0.$$

Presented by Academician L. S. Pontryagin on 4 March 1966. Orig. art. has: 13 formulas.

SUB CODE: 12/ SUBM DATE: 18Feb66/ ORIG REF: 002

Card 3/3

KAMINKER, D.M.; LOBASHOV, V.M.; NAZARENKO, V.A.; SAYENKO, L.F.; KHARKEVICH, G.I.;
YEGOROV, A.I.

Relative measurements of the longitudinal electron polarization in
 β -decay. Zhur. eksp. i teor. fiz. 47 no.5:1668-1670 N '64.
(MIRA 18:2)

1. Fiziko-tehnicheskii institut imeni A.F. Ioffe AN SSSR.

SAYENKO, L.F.; YEGOROV, A.I.; IGNATENKO, Ye.I.; MOSKALEV, P.N.

Production of In¹¹⁴* preparations of high specific activity. Izv.
AN SSSR. Ser. fiz. 29 no.7:1236 J1 '65. (MIRA 18:7)

YEGOROV, A. I.

L 16097-65 EWT(m) DIAAP/ESD(c)/ESD(ga)/ESD(t)/SSD/AFHL/ASD(a)-5/RAEM(a)
ACCESSION NR: AP5000311 S/0056/64/047/005/1668/1670

AUTHORS: (Kaminker, D. M.; Lobashov, V. M.; Nazarenko, V. A.;
Sayenko, L. F.; Kharkevich, G. I.; Yegorov, A. I.)

TITLE: Relative measurement of the longitudinal polarization of
electrons in Beta decay 19

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 47,
no. 5, 1964, 1668-1670

TOPIC TAGS: beta decay, electron polarization, electron energy,
circular polarization, bremsstrahlung, nuclear structure

ABSTRACT: To check on the hypothesis advanced to explain some
anomalies in the longitudinal polarization of electrons, namely
that the internal structure of the nucleus gives rise to higher-
order corrections, the authors attempted to ascertain the dependence
of these anomalies on the electron energy. To this end, relative

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L 16097-65

ACCESSION NR: AP5000311

0

measurements of the longitudinal polarization of electrons were measured in β decay of P^{32} , In^{114} , Pr^{142} , Ho^{166} , and Re^{188} at energy $E\beta \approx 1250$ keV. The experiments consisted of measuring the circular polarization of the bremsstrahlung produced by deceleration of the β electrons in a lead target, using the setup shown in Fig. 1 of the enclosure. The circular polarization of the bremsstrahlung γ quanta of the β electrons of In^{114} , Pr^{142} , Ho^{166} , and Re^{188} was compared with the circular polarization of the bremsstrahlung γ quanta of P^{32} β electrons. The electron energy was determined with the aid of a magnetic lens spectrometer. The values obtained for the longitudinal polarization relative to that of P^{32} were 0.960 ± 0.0015 , 0.934 ± 0.015 , 0.942 ± 0.015 , and 1.005 ± 0.016 for In^{114} , Pr^{142} , Ho^{166} , and Re^{188} respectively. The observed increase in the deviation of the longitudinal polarization of the electrons from $-v/c$ with decreasing total energy of the electrons (in almost linear fashion) does not contradict the hypothesis of the influence of internal structure of the nucleus. The observed deviations in the

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ACCESSION NR: AP5000311

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longitudinal polarization do not correlate with available data on the form of the β spectra of the corresponding transitions. "The authors thank V. A. Knyaz'kov, V. B. Belyakov, V. P. Lapin, and G. D. Chuklin for help in preparing the apparatus and measurements, and also A. N. Timokhin for participating in preparation of the p^{32} and In^{114} sources." Orig. art. has: 1 figure.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe Akademii nauk SSSR (Physicotechnical Institute, Academy of Sciences SSSR)

SUBMITTED: 23May64

ENCL: 01

SUB CODE: NP

NR REF SOV: 004

OTHER: 002

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L 16096-65
ACCESSION NR: AP5000311

ENCLOSURE: 01

0

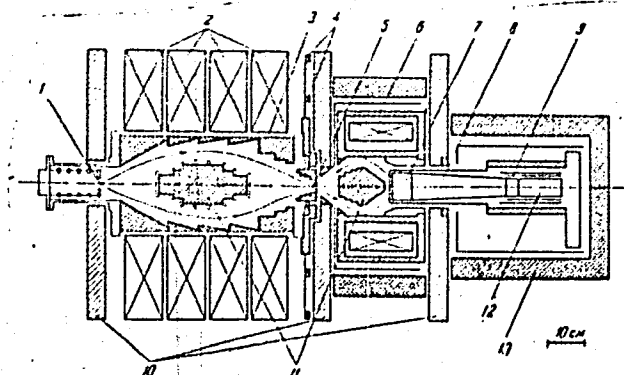


Fig. 1. Schematic diagram of installation. 1 - Source, 2 - magnetic-spectrometer coil, 3 - vacuum chamber, 4 - compensation coils, 5 - lead target, 6 - gamma polarimeter, 7 - NaI(Tl) crystal, 8 - light pipes, 9 - permalloy screens, 10 - Armo screens, 11 - lead screens, 12 - photomultiplier, 13 - lead shield
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L 1862-66

EWI(m)/EPF(n)-2/EWP(t)/EWP(b)

DIAAP/IJP(c)

JD/WW/JG/DM

ACCESSION NR: AP5022642

UR/0089/65/019/002/0188/0190
621.039.516.23

AUTHOR: Kondurov, I. A.; Gracheva, L. M.; Yegorov, A. I.; Kaminker, D. M.;
Nikitin, A. M.; Petrov, Yu. V.

TITLE: Reactor burn-up cross section of Pm^{149} and samarium poisoning

SOURCE: Atomnaya energiya, v. 19, no. 2, 1965, 188-190

TOPIC TAGS: samarium, poison effect, nuclear reactor, nuclear technology, neutron capture, capture cross section

ABSTRACT: The authors measured the Pm^{149} burn-up cross section by determining the amount of Pm^{150} produced after Pm^{149} is exposed to a flux of thermal neutrons. This cross section is important because Pm^{149} burn-up determines the amount of samarium produced by promethium decay after reactor shutdown, and an excess of samarium can prevent restarting of the reactor. The radioactive Pm^{149} itself was obtained from their reaction $Nd^{148} (n, \gamma) Nd^{149} + Pm^{149}$. The separation of the promethium is briefly described. The radioactive Pm^{149} was exposed to a flux of Card / 1/2

L 1862-66

ACCESSION NR: AP5022642

10^{14} neut/cm².sec in the water section of the VVR-M reactor. Measurement of the γ spectrum from the Pm^{149} shows the presence, besides the 285-keV peak due to Pm^{149} of peaks at 340 and 410 keV with shorter half lives (2.7 h) belonging to Pm^{150} and a 103-keV line belonging to Sm^{153} . The cross section for the capture of thermal neutrons by Pm^{149} is determined from the value of the neutron flux and the ratio of the activities of Pm^{150} and Pm^{149} . The value obtained after correcting for the counting efficiency of the apparatus and other factors is 1700 ± 300 barns for neutrons with $v = 2200$ m/sec. This yields a samarium poisoning cross section of 74500 barns, as against a fuel fission cross section of 582 barns, for a 1.3% yield of promethium during fission. The correction necessary to apply the results to a fast-neutron reactor is briefly discussed. Orig. art. has 3 figures and 5 formulas. [02]

ASSOCIATION: None

SUBMITTED: 20Jul64

ENCL: 00

SUB CODE: NP

NO REF SOV: 002

OTHER: 006

ATD PRESS: 4/12

Card 2/28

KATASHIN, L.V.; YEGOROV, A.K.; BESSONOV, S.V.

Using stage and jet flotation in treatment of lead-zinc ores.
Izv. vys. ucheb. zav.; tsvet. met. no.2:33-38 '58. (MIRA 11:8)

1. Irkutskiy gornometallurgicheskiy institut. Kafedra obogashcheniya
poleznykh iskopayemykh.

(Flotation) (Lead ores) (Zinc ores)

S/069/61/023/006/004/005
B119/B101

AUTHORS: Neyman, R. E., Lyashenko, O. A., Kirdeyeva, A. P.,
Yegorov, A. K., Kiseleva, O. G.

TITLE: Investigation of stability and coagulation of synthetic
latexes. 1. Effect of adsorptive saturation of the globule
surface by the emulsifier

PERIODICAL: Kolloidnyy zhurnal, v. 23, no. 6, 1961, 732 - 738

TEXT: The coagulation kinetics of dilute synthetic latexes as dependent
on the adsorptive saturation of the globule surface by the emulsifier
(Nekal) was investigated. Experiments were conducted with divinyl
styrene latex of the type CWC-30-AP (SKS-30-AR). The production of
latex specimens differently saturated with emulsifier was carried out:
(1) Dialysis of the latex for 50 days, the adsorptive saturation with
emulsifier having been reduced down to 19%. The dialyzate was divided
and mixed with various amounts of Nekal. (2) The latex was also dialyzed.
Specimens were taken during dialyzing (maximum saturation of the globule
surface ~75%, minimum ~11%). The degree of surface saturation was

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Investigation of stability...

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B119/B101

determined by adsorption titration with aqueous Nekal solution (indication: change of the surface tension). Coagulation was brought about by means of CaCl_2 and NaCl , respectively. The course of coagulation was observed on the basis of turbidity (measuring instrument: ~~HOM~~ (NFM) nephelometer). The value of the concentration gradient of the refractive index of dispersion, was determined by means of ~~AMP~~ 23 (IRF-23) refractometer. The macroelectrophoresis of latex specimens was conducted with an instrument according to A. I. Rabinovich and Ye. V. Fodiman (Zh. fiz. khimii 2, 336, 1931). The ζ -potential was calculated on the basis of data obtained from the electrophoresis. Results: The coagulation of latex not completely saturated takes place in two steps. The duration of the first step (characterized by a relatively quick turbidity of the solution) was 80 - 85 min for the least saturated latex specimens, and increased with increasing adsorptive saturation. Explanation: The quick coagulation of the globules occurs in places not covered by emulsifier. The size of the aggregates developed after this first coagulation step decreases, therefore, with increasing surface saturation of the initial globules. The second step takes place much more slowly than the first. This is due to the necessary overcoming of an additional

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Investigation of stability...

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B119/B101

potential barrier. The first phase could not be established for completely saturated latex; coagulation takes place from the start according to the second phase. The mean radius of the initial globules was 20 - 22 μ . The radius of the aggregates formed after the first coagulation step was 43 - 58 μ . The surface tension of the latex decreases with increasing saturation and is constant of further Nekal additions after the total saturation. The ζ -potential changes only slightly within the degrees of saturation investigated: 55 mv for latex saturated up to 25 - 30%; 65 mv for completely saturated latex. A dependence of the electrophoretic migration rate of the globules on their adsorptive degree of saturation was not established. Studies by B. V. Deryagin (Tr. Tret'ey vses. konferentsii po kolloidnoy khimii, Izd. AN SSSR 1956, str. 225), P. A. Rebinder (Sb. "Kolloidy v pishchevoy prom-sti", 2, 1949, str. 21), and S. A. Glikman and Ye. P. Korchagina (Ref. 5: Kolloidn. zh. 19, 657, 1957) are mentioned. There are 6 figures, 1 table, and 13 references: 9 Soviet and 4 non-Soviet. The two most recent references to English-language publications read as follows: J. T. G. Overbeek, Advances in Coll. Science, N. J., 3, 97, 1950, S. H. Maron, W. W. Bowler, J. Amer. Chem. Soc., 70, 3893, 1948. ✓

Card 3/4

Investigation of stability...

S/069/61/023/006/004/005
B119/B101

ASSOCIATION: Voronezhskiy universitet, Khimicheskiy fakul'tet,
Laboratoriya vysokomolekulyarnykh soyedineniy (Voronezh
University, Division of Chemistry Laboratory of High-
molecular Compounds) ✓

SUBMITTED: August 27, 1960

Card 4/4

NANIYEVA, T.V.; YEGOROV, A.K.

Ground barite as a suspensoid. TSvet. met. 35 m.6:75-76 Ja '62.
(MIRA 15:6)

(Nonferrous metals) (Ore dressing)

YEGOROV, A.L.

AUTHOR: Yegorov, A.L. (Novosibirsk)

47-58-3-10/27

TITLE: Study of Deformations of a Solid Body (Izucheniye deformatsii
tverdogo tela)

PERIODICAL: Fizika v Shkole, 1958, Nr 3, pp 47-49 (USSR)

ABSTRACT: Until recently, the physics classes in schools did not have any equipment for the demonstration of a deformation process in solid. The author recommends a simple and convenient device enabling the students to understand the meaning of elasticity modulus and the strength limit of stretched wire. The apparatus has been put to use in the 10th class and has worked faultlessly. There are 6 technical drawings and 1 form.

ASSOCIATION: 54-ya srednyaya shkola (The 54th Secondary School)

AVAILABLE: Library of Congress

Card 1/1 1. Physics-Study and teaching 2. Solids-Deformation-Study and teaching 3. Deformation-Study and teaching

SSV-47-58-6-11/28

AUTHOR: Yegorov, A.L.

TITLE: An Electromagnetic Oscillograph (Elektromagnitnyy ostsillo-
graf)

PERIODICAL: Fizika v shkole, 1958, Nr 6, pp 55 - 56 (USSR)

ABSTRACT: The author describes the construction of an oscillograph, the
basic part of which is a small square mirror of 6 x 6 or
8 x 8 mm cut from thin glass. He explains the operating
principle and indicates those points to which the students'
attention should be particularly drawn. There are 5 dia-
grams.

ASSOCIATION: 54-ya srednyaya shkola, Novosibirsk (54th Secondary School,
Novosibirsk)

1. Oscillography---Construction

Card 1/1

YEGOROV, A.L.

Demonstration of the measurement of hardness and change in hardness
during heat treatment of steel. Politekh. obuch. no. 7:76-78 J1 '58.
(Steel--Heat treatment) (Hardness) (MIRA 11:8)

YEGOROV, A.I. (Moskva)

Subject "Sound" in the 9th grade. Fiz. v shkole 20 no.5:43-48 S-0
'60. (MIRA 13:11)

(Physics--Study and teaching)

(Sound)

MARGOLIS, Aron Abramovich; PARFENT'YEVA, Natal'ya Yefimovna; SOKOLOV, Ivan Ivanovich. Prinsipali uchastiye: MUR, D.M.; IVANOVA, L.A.; YEGOROV, A.L. ALEKSEYEVA, N.V., red.; SVITKOV, L.P., red.; KOVALENKO, V.L., tekhn.red.

[Laboratory manual for experiments in physics; for students in pedagogical institutes] Praktikum po metodike fiziki; posobie dlia studentov pedagogicheskikh institutov. Moskva, Gos. uchebno-pedagog.izd-vo M-va prosv.RSFSR, 1960. 341 p.

(MIRA 14:2)

(Physics--Laboratory manuals)

YEGOROV, A.L. (Moskva)

Problems on physics for extracurricular work. Fiz.v shkole 21
no.3:92-93 My-Je '61. (MIRA 14:8)
(Physics---Problems, exercises, etc.)

YEGOROV, A.L. (Moskva)

Explanation of M.V.Lomonosov's work in the field of electricity and
optics in the school course on physics. Fiz.v shkole 21 no.4:
32--38 JI-Ag '61. (MIRA 14:10)

(Lomonosov, Mikhail Vasil'evich, 1711-1765)
(Physics--Study and teaching)

YEGOROV, A.L. (Moskva)

Studying the great program of the development of communism in the
process of teaching physics. Fiz.v shkole 22 no.1:32-36 Ja-7
'62. (MIRA 15:3)

(Communist education) (Physics---Study and teaching)